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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/803,819	03/13/2001	Teruhiko Hagiwara	7420-081-999	1331

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PENNIE AND EDMONDS
1155 AVENUE OF THE AMERICAS
NEW YORK, NY 100362711

EXAMINER

VARGAS, DIXOMARA

ART UNIT PAPER NUMBER

2859

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/803,819

Applicant(s)

HAGIWARA, TERUHIKO

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-9, 12-17 and 20-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-7, 9-16, 20-24, 26 and 28 is/are rejected.
- 7) ☒ Claim(s) 8, 17, 25 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 3-7, 9-16, 20-24, 26 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Hawkes et al (US 6,459,263).

With respect to claims 3, 10 and 20, Hawkes discloses a method for measuring an indication of attributes of materials containing a fluid state, the method comprising the steps of (Abstract): providing a time-domain signal indicative of attributes of said materials in a single event measurement (Figures 3A-3C); constructing a time-domain averaged data train from said signal (Column 9, lines 34-37), the averaging being performed over two or more time intervals Δ_i wherein at least two of said two or more time intervals Δ_i are different (Figure 5) and computing an indication of attributes of said materials from the time-domain averaged data train (Columns 5 and 10, lines 9-11 and 14-38 respectively).

3. With respect to claims 4, 14 and 22, Hawkes discloses the following expression is used to construct the time-domain averaged data train: $S_{\Delta}(t) = \int_t^{t+\Delta} dt' S(t') / \Delta$ where $S(t)$ is the provided time-domain signal (Column 9, lines 34-37; Figure 5).

Art Unit: 2859

4. With respect to claims 5, 15 and 23, Hawkes discloses the interval Δ_i is fixed and the time-domain averaged data train is constructed at times $t = t_0, t_0 + \Delta, t_0 + 2\Delta, \dots t_0 + N\Delta$ (Figure 5).
5. With respect to claim 6, Hawkes discloses the time-domain signal is an NMR echo train (Abstract).
6. With respect to claims 7, 16 and 24, Hawkes discloses the step of computing an indication of attributes is performed using inversion of the constructed time-domain averaged data train into T2 domain (Column 10, lines 14-27).
7. With respect to claims 9, 11, 21 and 28, Hawkes discloses the step of averaging two or more constructed time-domain averaged data trains to increase the signal-to-noise ratio (SNR) of the measurement (Column 9, lines 34-37).
8. With respect to claim 26, see rejection of claims 3-6 above.

Allowable Subject Matter

9. Claims 8, 17, 25 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter:
11. With respect to claims 8, 17, 25 and 27, the claims have been found allowable over the prior art because the prior art fails to teach or fairly suggest a method for measuring an indication of attributes of materials containing a fluid state, the method comprising the step wherein the T2 distribution is estimated using the following expression $S_{\Delta}(t) = \sum_{(T_2)} \phi(T_2) \exp(-t/T_2)(1 - \exp(-$

Art Unit: 2859

Δ / T_2)) + Noise where $\phi(T_2)$ is the porosity corresponding to the exponential decay time T_2 in combination with the remaining limitations of claim 3.

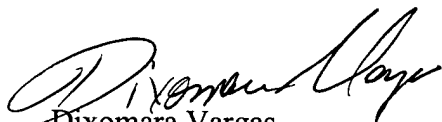
Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art discloses NMR logging tool measurement methods with echo average or different time distributions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (703) 305-5705. The examiner can normally be reached on 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (703) 308-3875. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0956.



Dixomara Vargas
Art Unit 2859
September 20, 2003



Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800